

**WHAT IS CLAIMED IS:**

1. A constant velocity universal joint comprising:

an outer joint member having an inner periphery provided with three axial track grooves, axial roller guideways being arranged on both sides of each of the track grooves;

a tripod member having three radially-projecting trunnions;  
and

a roller assembly mounted on each of the trunnions of the tripod member, the roller assembly being capable of tilting movement with respect to the trunnion and having a roller to be guided along the roller guideways in directions parallel to the axis of the outer joint member, wherein

at least one component part of the joint is limited to a predetermined range in softening resistance characteristic value (R), wherein

the roller assembly includes the roller to be guided by the roller guideway, and a support ring mounted on the outer periphery of the trunnion so as to support the roller rotatably;

the trunnion has a convex-spherical outer periphery; and

the support ring has a cylindrical or conical inner periphery.

2. The constant velocity universal joint according to claim 1, wherein the component part is made of steel having a carbon content of 0.15-0.40% by weight, has a surface layer

formed by carburizing and tempering beneath a predetermined surface, and has the softening resistance characteristic value  $R$  falling within the range of  $705 < R \leq 820$  in Vickers hardness (Hv).

3. The constant velocity universal joint according to claim 1, wherein the component part is made of steel having a carbon content of 0.15-0.40% by weight, has a surface layer formed by carbonitriding and tempering beneath a predetermined surface, and has the softening resistance characteristic value  $R$  falling within the range of  $705 < R \leq 820$  in Vickers hardness (Hv).

4. The constant velocity universal joint according to claim 1, wherein the component part is made of steel having a carbon content of 0.45-0.60% by weight, has a surface layer formed by induction hardening and tempering beneath a predetermined surface, and has the softening resistance characteristic value  $R$  falling within the range of  $630 < R \leq 820$  in Vickers hardness (Hv).

5. A constant velocity universal joint comprising:

an outer joint member having an inner periphery provided with three axial track grooves, axial roller guideways being arranged on both sides of each of the track grooves;

a tripod member having three radially-projecting trunnions;  
and

a roller assembly mounted on each of the trunnions of the tripod member, the roller assembly being capable of tilting movement with respect to the trunnion and having a roller to be guided along the roller guideway in directions parallel to the axis of the outer joint member, wherein

at least one component part of the joint has a surface layer containing a structure in which carbide is distributed into a martensite matrix, wherein

the roller assembly includes the roller to be guided by the roller guideway, and a support ring mounted on the outer periphery of the trunnion so as to support the roller rotatably;

the trunnion has a convex-spherical outer periphery; and

the support ring has a cylindrical or conical inner periphery.

6. The constant velocity universal joint according to claim 5, wherein the carbide is spheroidized carbide.

7. The constant velocity universal joint according to claim 5, wherein the component part is made of steel material having a carbon content of 0.80% by weight or higher.

8. The constant velocity universal joint according to claim 5, wherein:

the component part is made of steel material having a carbon content of 0.15-0.40% by weight; and

the surface layer is a carburized layer.

9. The constant velocity universal joint according to claim 5, wherein the component part falls within the range of HRC 60-68 in surface hardness at least on its contact surface.